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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/617,564	07/17/2000	Paul Hua	GSH 08-886639	8340
7590 03/07/2006 Hayes Soloway Hennessey & Hage 175 Canal Street Manchester, NH 03101			EXAMINER AGGARWAL, YOGESH K	
			ART UNIT 2615	PAPER NUMBER

DATE MAILED: 03/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/617,564	HUA ET AL.	
	Examiner	Art Unit	
	Yogesh K. Aggarwal	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-14 is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5 is/are rejected.
- 7) ☒ Claim(s) 4 and 6-8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

by

Response to Arguments

1. Applicant's arguments filed 12/07/2005 have been fully considered but they are not persuasive.

Examiner's response:

2. Applicant argues with regards to claim 1 that Ernest et al. teaches the video mode and still mode as two separate modes and therefore Ernest et al. does not teach the use of a pre-reset before the subsequent reset shown as the activation of the "clear CCD" signal, but merely shows the process of the two modes as an electronic shutter. The Examiner respectfully disagrees.

Ernest teaches that in video mode the fields A and B are read and reset with an electronic shutter at 1/60 second as shown in figure 1 which is read as sequentially applying a pre-reset voltage to each of the predetermined groups of one or more sensors. Ernest clearly teaches in col. 1 lines 19-28

In the video mode of operation, the length of time during which each of a Field A and a Field B is integrated or exposed to image light is controlled electronically without a mechanical shutter mechanism by alternately integrating and discharging or reading out the respective two fields in synchronism with timing control supplied by a CCD Clock. Such electronic shutter operation is due to the characteristics of a CCD, namely, it becomes relatively insensitive to light during readout.

Therefore during video mode, the length of time that controls the exposure time is the electronic shutter with a CCD clock pulse at intervals of 1/60 seconds. Electronic shutter therefore is used as reset at every 1/60 seconds to reset the fields A and B alternately integrating and discharging (reset).

3. Ernest teaches that in the still mode of operation, the same electronic shutter is used to clear the CCD with a CCD clock (col. 1 lines 28-38, figures 1 and 2) and is therefore read as applying a predetermined reset voltage to all of the sensors substantially simultaneously.

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4. Applicant argues that Ernest basically teaches that, in one mode (video) of operation, the fields A and B of sensors are read and reset sequentially and that in another completely independent mode (still) of operation, all of the sensors are read and reset simultaneously. In other words, Ernest et al teaches the use of step (a) or (b) and not the use of steps (a) and (b). The Examiner respectfully disagrees. It is well known to one skilled in the art of digital cameras that while taking a still image, a video or motion mode precedes the still mode. Therefore as described in Ernest a video mode in which the fields A and B of sensors are read and reset sequentially and in still mode of operation during which all of the sensors are read and reset simultaneously form part of an image taking sequence and therefore is read as a complete reset cycle.

5. Applicant argues that Berenzin's RESET N signal is not a pre-resetting signal, but is a resetting signal for Row N. Further RESET N+1 is a reset signal for row N+1, therefore these two signals do not operate on the same sensors as reset signals. The Examiner respectfully disagrees. As explained above, the functions of pre-resetting and simultaneously resetting all the sensors are taught by Ernest. Berenzin was merely used to disclose that a reset technique is used for both CCD and APS signals like.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. Claims 1, 2, 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over (USPN 4,827,348 to Ernest et al.) in view of Berezin (US Patent # 6,603,513).

[Claim 1]

Ernest discloses a method of resetting an array of CCD during a reset cycle wherein the sensors are arranged in rows and columns and formed into predetermined groups each having one or more sensors (e.g., the predetermined groups are fields A and B of the image sensor), wherein the reset cycle comprises:

8. (a) sequentially applying a pre-reset voltage to each of the predetermined groups of one or more sensors in the array (e.g., the fields are sequentially read and reset as illustrated in Fig. 1, col. 1 lines 19-28); and

(b) subsequently applying a predetermined reset voltage to all of the sensors in the array substantially simultaneously (e.g., when a still image operation is performed all of the sensors in the array are reset as illustrated in Figs. 1 and 2, col. 1 lines 28-38).

Ernest fails to disclose a method of pre-resetting and resetting substantially simultaneously a group of APS pixels. However Berezin discloses an APS sensor 145 that acts as a single-stage CCD (col. 3 lines 25-33, figure 4) and a method for pre-resetting ('RESET N' as shown in figure 5 is read as pre-resetting) and 'RESET N+1' is being read as resetting substantially for each row of the sensors. Thus, Berezin is interpreted as disclosing the claimed limitations for an APS and a CCD.

Therefore taking the combined teachings of Ernest and Berezin, it would be obvious to one skilled in the art at the time of the invention to have been motivated to have the used the process of pre-resetting and simultaneously resetting as taught in Ernest to an APS as well as a

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CCD sensor as disclosed in Berezin in order to reduce the number of control lines resulting in greater space resolution and higher quantum efficiency.

In regards to claims 2 and 3 Examiner notes that Ernest discloses that each row of each field is made up of one or row of sensors with multiple columns, wherein each field has multiple rows.

In regards to claim 5 Ernest discloses an apparatus of resetting an array of CCD during a reset cycle wherein the sensors are arranged in rows and columns and formed into predetermined groups each having one or more sensors (e.g., the predetermined groups are fields A and B of the image sensor), comprising:

a controller coupled to the sensor array for sequentially applying a pre-reset voltage to each of the predetermined groups of one or more sensors in the array (e.g., the fields are sequentially read and reset as illustrated in Fig. 1, col. 1 lines 19-28); and

a controller coupled to the sensor array for subsequently applying a predetermined reset voltage to all of the sensors substantially simultaneously in the array (e.g., when a still image operation is performed all of the sensors in the array are reset as illustrated in Figs. 1 and 2, col. 1 lines 28-38).

Ernest fails to disclose an apparatus for pre-retting and resetting substantially simultaneously a group of APS pixels. However Berezin discloses an APS sensor 145 that acts as a single-stage CCD (col. 3 lines 25-33, figure 4) and a method for pre-resetting ('RESET N' as shown in figure 5 is read as pre-resetting) and 'RESET N+1' is being read as resetting substantially for each row of the sensors. Thus, Berezin is interpreted as disclosing the claimed limitations for an APS and a CCD.

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Therefore taking the combined teachings of Ernest and Berezin, it would be obvious to one skilled in the art at the time of the invention to have been motivated to have the used the process of pre-resetting and simultaneously resetting as taught in Ernest to an APS as well as a CCD sensor as disclosed in Berezin in order to reduce the number of control lines resulting in greater space resolution and higher quantum efficiency.

Allowable Subject Matter

9. Claims 9-14 are deemed allowable over the prior art of record, the reasons for allowance are as follows:

10. In regards to claim 9 and 12 see Examiner's notes for the reasons for allowance of claims 4 and 6 in Paper No. 4.

11. Claims 10, 11, 13, and 14 depend from claims 9 and 12.

12. Claims 4 and 6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. See the reasons for allowance in Paper No. 4.

13. Claims 7 and 8 depend from claim 6.

Conclusion

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

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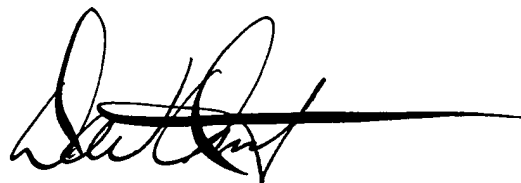
will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yogesh K. Aggarwal whose telephone number is (571) 272-7360. The examiner can normally be reached on M-F 9:00AM-5:30PM.

15. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on (571)-272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

16. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

YKA
March 2, 2006

A handwritten signature in black ink, appearing to read 'David Ometz', with a long horizontal line extending to the right.

DAVID OMETZ
SUPERVISORY PATENT EXAMINER